

What is claimed is:

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1. A bridge apparatus for bridging between a wired network having wired communication devices, and wireless devices including first type wireless devices and second type wireless devices, the bridge apparatus comprising:

a wired network interface for interfacing data communication between the bridge apparatus and the wired communication devices of the wired network;

a first type radio for interfacing data communication between the bridge apparatus and the first type wireless devices;

a second type radio for interfacing data communication between the bridge apparatus and the second type wireless devices; and

a bridge controller for controlling data traffic between the wired network and the first and second type wireless devices, the bridge controller functioning in a first mode using the first type radio when data is transmitted from or destined for the first type wireless devices, and functioning in a second mode using the second type radio when data is transmitted from or destined for the second type wireless devices.

2. The bridge apparatus as claimed in claim 1, wherein:

each of the first type wireless devices is assigned with an address, and data sent from and destined for one of the first type wireless devices includes the address of the one of the first type wireless devices; and

the bridge controller functions in the first and second modes in accordance with the address included in the data.

3. The bridge apparatus as claimed in claim 2, wherein:

the first type wireless devices use a capacity which is lower than a capacity of the wired network; and

the bridge controller has a filter device for filtering data for transmission by the first type radio when the data is received from the wired network for the first type wireless devices.

4. The bridge apparatus as claimed in claim 1, wherein

data sent from the second type wireless devices includes wireless protocol information which indicates a wireless protocol used for communicating the data, and data sent from the wired network includes wired protocol information which indicates a wired protocol used for communicating data over the wired network; and

the bridge controller has a protocol convertor for converting the wired protocol information included in data with the wireless protocol information for transmission by the second type radio when the data is received from the wired network for the second type wireless devices.

5. The bridge apparatus as claimed in claim 1, wherein the first type radio comprises a first radio having a first radio coverage area, and a second radio which has similar characteristics to the first radio and has a second radio coverage which is different from the first radio coverage area.

6. The bridge apparatus as claimed in claim 1, wherein said first type radio in accordance with the IEEE 802.11 specification.

7. The bridge apparatus as claimed in claim 6 wherein said first type-radio is a frequency-hopper radio.

8. The bridge apparatus as claimed in claim 1, wherein said second type radio is in accordance with the IEEE 802.11 specification.

9. The bridge apparatus as claimed in claim 1 wherein said first type radio and said second type radio are in accordance with the IEEE 802.11 specification.

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10. A bridge system for bridge between a wired network having wired communication devices, and wireless communication devices including first type wireless devices and second type wireless devices, the bridge system comprising:

a plurality of bridge apparatuses, each of which has a radio coverage, each of the bridge apparatuses having:

a wired network interface for interfacing data communication between the bridge apparatus and the wired network;

a first type radio for interfacing data communication between the bridge apparatus and the first type wireless devices;

a second type radio for interfacing data communication between the bridge apparatus and the second type wireless devices; and

a bridge controller for controlling data traffic between the wired network and the first and second type wireless devices, the bridge controller functioning in a first mode using the first type radio when data is transmitted from or destined for the first type wireless devices, and functioning in a second mode using the second type radio when data is transmitted from or destined for the second type wireless devices.

11. The bridge system as claimed in claim 10 wherein the bridge apparatuses are distributed to cover a predetermined area with radio coverages of the bridge apparatuses.

12. The bridge system as claimed in claim 10, wherein

at least one of the first and second type wireless devices is a mobile device movable from a first radio coverage of a first bridge apparatus to a second radio coverage of a second bridge apparatus; and

the first bridge apparatus hands over the data communication with the mobile device to the second bridge apparatus when the mobile device moves out of the first radio coverage into the second radio coverage.

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13. A method for bridging between a wired network having wired communication devices, and wireless devices including first type wireless devices and second type wireless devices, the method comprising the step of:

receiving data from the wired communication devices of the wired network;
controlling data traffic between the wired network and the first and second type wireless devices;
using a first type radio for transmitting data to the first type wireless devices; and
using a second type radio for transmitting data to the second type wireless devices.

14. The method as claimed in claim 13 wherein

each of the first type wireless devices is assigned with an address, and data sent from and destined for one of the first type wireless devices includes the address of the one of the first type wireless devices; and

the step of controlling uses the first or second type radio in accordance with the address included in the data.

15. The method as claimed in claim 14 wherein

the first type wireless devices use a capacity which is lower than a capacity of the wired network; and

the step of controlling comprises the step of filtering data for transmission by the first type radio when the data is received from the wired network for the first type wireless devices.

16. The method as claimed in claim 14 wherein

data sent from the second type wireless devices includes wireless protocol information which indicates a wireless protocol used for communicating the data, and data sent from the wired network includes wired protocol information which indicates a wired protocol used for communicating data over the wired network; and

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the step of controlling further comprises the step of converting the wired protocol information included in data with the wireless protocol information for transmission by the second type radio when the data is received from the wired network for the second type wireless devices.

17. The method as claimed in claim 14 wherein the step of using the first type radio comprises the steps of:

using a first radio having a first radio coverage area; and

using a second radio which has similar characteristics to the first radio and has a second radio coverage which is different from the first radio coverage area.

18. A bridge apparatus for bridging between a wired network having wired communication devices and at least one wireless device, comprising:

a wired network interface for interfacing data communication between the bridge apparatus and the wired communication devices of the wired network;

a first radio attached to a first antenna for interfacing data communication between the bridge apparatus and the at least one wireless device located within a first coverage area;

a second radio attached to a second antenna for interfacing data communication between the bridge apparatus and the at least one wireless device located within a second coverage area;

each of said first and second radios operable to transfer respective communication therebetween when one of said at least one wireless devices moves between respective coverage areas.

19. The bridge apparatus according to claim 18 wherein said communication transfer occurs when said moving at least one wireless device so instructs each of said first and said second radios of said transfer.

20. The bridge apparatus as claimed in claim 18 wherein said first radio and said second radio are in accordance with the IEEE 802.11 specification.